Occupational Health Risks: Case Study of *Bandwallahs*

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ABSTRACT: The term 'Occupational Health Risks' refers to the risks which are inherent to the type of work people are engaged in, to earn their livelihoods. Unsafe work environment and exposure to risk factors are major causes for development of such occupational health hazards. Use of better ergonomics, safe work environment with aim of enhancing physical, mental and social support and well-being of workers are some of steps which can contribute towards attaining better occupational health of workers among others like maintaining of efficient work capacity, development of inter-personal skills.One such profession that affects the health of people engaged is *Band*. These people generally come from economically weaker sections of the society, and to earn their living and bring stability to their lives, they are obligated to do the jobs that might affect their health adversely. Presently two case studies were done on *Bandwallahs* aged 55 years and it was observed that prolonged exposure to playing brass instruments had adversely impacted the subjects. Cardio-respiratory measurements showed reduced lung functioning; one subject had also developed other health issues including oromandibular pain, pain in dental cavity and blurred vision. Another subject had developed lump on the lips along with swelling of lips.

INTRODUCTION

World Health Organization (2002) in its report stated that workplace related risks have been responsible for a significant proportion of diseases which includes 37% of back pain, 16% of hearing loss, 13% of chronic obstructive pulmonary diseases, 11% of asthma, 10% of injuries, 10% of lung cancers and 2% of leukemia. Occupational Health is now a multidisciplinary approach which not only includes physical but also mental wellbeing either positively or negatively thus impacting the efficiency and productivity of the work being done.

The *Bandwallahs* while performing their jobs are exposed to severe form of respiratory and cardiac pressure while they blow huge volume of air at a predefined pace in order to blow big brass musical instruments during their performance and thus majorly suffer from diseases related to lungs and heart. The instruments such as Saxophone, Bagpiper, Flute, *Shehnai*, and French Horn (commonly known as *Baja* in India), demands very high lung capacity of the person playing them. Sagdeo and Khuje (2012) concluded that playing such an instrument act as a lung exercise, as a certain period of practicing the instrument also builds up the lung capacity of the player accordingly. But at the same time, excessive working in any profession causes long term health hazards; in this case, breathing and dental problems may occur.

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MATERIALS & METHODS

The study involved a direct interview with the participants in unstructured format. The participants then went through series of anthropometric and spirometric measurements involving measurements of variable like height, weight, sitting height, chest circumference and expansivity, measurement of blood pressure, heart rate, breath holding time and later on spirometry was performed to assess lung function using an windmill type portable spirometer to measure the variables like FVC, FEV1, PEFR and FER.

Definition of Measurements

Body Weight: The subjects body weight was measured using portable digital weighing scale, with minimum clothing and without shoes.

Stature: Stature was measured from the floor to the vertex with Martin's Anthropometer, while the subject stands erect with heels together on the floor and looks horizontally forward.

Sitting Height: It measures the straight distance from sitting surface to vertex. Measured with the subject's back stretched up straight as one sits on a table with feet hanging down unsupported on the edge, the back of his shoulders be directly about the edge of the table.

Chest Circumferences: It is the horizontal circumference of the upper part of the body-trunk at the level of xyphoid process.

Chest Maximum Inspiration: It is the horizontal circumference of the upper part of the body-trunk at the level of xyphoid process during maximum inspiration.

Chest Maximum Expiration: It is the horizontal circumference of the upper part of the body-trunk at the level of xyphoid process during maximum expiration.

Breath Holding Time: It is defined as the maximum time in seconds that a person can voluntarily hold his or her breath measured between the end of a deep breath until he or she begins to exhale. Subject is asked to inhale deep breath and voluntarily hold breath for as long as they could. The measurement is recorded in seconds with the help of stopwatch. Nose clips are also used so as to block any exhalation through nose.

Blood Pressure: Blood pressure is measured using two numbers. The first number, called systolic blood pressure, measures the pressure in your blood vessels when your heart beats. The second number, called diastolic blood pressure, measures the pressure in your blood vessels when your heart rests between beats.

Pulse Rate: The pulse is the expansion of the arteries. This expansion is caused by an increase in blood pressure pushing against the elastic walls of the arteries each time the heart beats.

Heart Rate: Heart rate is the speed of the heartbeat measured by the number of contractions of the heart per minute (bpm).

Forced Vital Capacity (FVC): It is defined as the maximum volume of air that can be exhaled (from a position of full inspiration), as rapidly as possible.

Forced Expiratory Volume in 1.0 second (FEV1): It is defined as volume of forced vital capacity that can be expired in 1second.

Forced Expiratory Ratio (FER): Percentage (FEV1/FVC * 100) of FVC expelled in the first second of a forced expiration.

Peak Expiratory Flow Rate (PEFR): It is the maximum rate of airflow achieved during expiration.

RESULTS & DISCUSSION

Case Study

Bands are generally hired for the occasion of marriages and other kind of celebrations. A band consists of approximately 10-12 individuals, each of which is responsible to play a particular instrument. Out of them,4 of them play brass (tuba, trombone, and trumpet) instrument, 1 or 2 of them hold the banner of the band, 1 is responsible for playing the drum, and a pair plays the setrum (a set of a *Dhol* and a *Tasha*). The senior/experienced most acts as "Master" who are at times 2 in number and plays trumpet. Master is key person of the band whose musical instructions and tune is followed by the remaining band members. This profession is totally un-organized in nature wherein the band owner contacts and contracts with the mediator known as *Thekedaar* for his seasonal requirement of players. The *Thekedaar*, is then responsible for providing the manpower to the

respective bands and the players keep on shifting from one band to another. The band owners provide all the necessary equipment, dress and a place to live for the musicians who have been selected for the season. This living place is generally very congested, with minimal lighting and ventilation, and plasters coming off the walls. The whole group of band with 14-15 persons stay and cook in the same place which mostly consists of two rooms. The rooms are totally messy with beddings on floor, wall hangers over loaded with falling clothes and instruments hanging on walls and kept in corners of the room. The single washroom is shared between the whole groups.

Figure 1: Kirti Band Office, Palam, New Delhi

One such person is Kunwar Pal, 55 years, with an experience of more than 40 years in this profession. He started in his early teens as the Board bearer in the band, under supervision of his father, who used to play the *Tuba* for a band in Karolbagh. After a few years he started playing the *Jhunjhuna*, and later on progressed as a full time *Tuba* player and till date, has been playing it on regular basis mainly in wedding season. Presently, he is engaged with *Kirti Band*, Palam, New Delhi. Now, his 16 year old son, Aman, has also joined the band who plays the *Jhunjhuna*and aspires to progress like his father and grandfather did. Kunwar Pal and his son, during off season return to their ancestral village in Moradabad, UP, where they are involved in seasonal employment activities such as working in fields as labourers, etc. Also, during the wedding season, Kunwar Pal drives e-rickshaw in the nearby areas during the day and plays *Tuba* in the night.

Kunwar Pal looks over-aged and weighs only 48 kgs. He is an addict and drinks alcohol on regular basis and also consumes tobacco (*kheni*). He complained of oromandibular pain, blurred vision while playing *tuba*, and other dental problems. Cardio-respiratory measurements depict increased blood pressure, decreased Forced Vital Capacity (FVC) and Forced Expiratory Volume (FEV1), and mean readings of Forced Expiratory Ratio (FER) and Peak Exploratory Flow Rate (PEFR). Kanwar Pal claims that he is perfectly fine as per his prevailing health condition and states responsible his profession for his health and consider his profession as a daily workout for his respiratory system.

Figure 2: Kunwar Pal performing Spirometry and his son Aman

However, a cross-sectional study by Kok *et al*. (2018) states that injuries or disorders related to mouth/ jaw, shoulders, neck, and wrists were most common among brass players. Similarly, a study by Nishiyama and Tsuchida (2016), which focused on finding association between risks of Temporo-mandibular Disorders (TMD) and playing wind instruments, concluded that mouthpiece pressure was a significant factor (47.6%) contributing to high risk for TMD and thus it has been suggested that players should be given proper training about correct embouchure and playing method when learning to play the instrument.

Shiv Charan is the master in the same band whose native place is Hamirpur in Uttar Pradesh. He plays trumpet and is a renowned person of the band in the native area. He is 55 years old and has experience of more than 36years in the profession. Apart from this, he is famous for his contribution in a Bollywood movie named "*Matru ki Bijli Ka Mandola*" and appearing in TV shows like India's Got Talent. He has been associated with International *Shyam Band*, New Delhi previously and has performed at various places including Dubai. Initially during his premature period, he worked as a light man and later progressed as a professional trumpet player. At later stage of his career, he shifted his family in Delhi and started as vegetable vendor in off seasons. He is very satisfied with his professional achievements as he recalls the time when he was introduced in this profession through his ancestral uncle who worked as a master in one of the band of Delhi Band association since 1988. He has now settled in Palam area. While questioning about the future prospective of the profession he was very uncomfortable especially due to the aftermaths of the recession in the profession followed by the fallout of COVID-19 pandemic. He is assertive about giving education to his children rather than helping him in the profession. He also discussed about the psychological stresses he had to face during his tenure. Shiv Charan always felt incompetent in the social fabric of the society where he plays the band as he had to literally fight for each penny demanding for meager earnings while performing for his band. At times he mentioned how in such an elusive parties/social gathering the band (artists) were not invited for dinner/food which at times depressed the whole band.

Figure 3: Conducting measurements on Master Shiv Charan

Although Shiv Charan looks healthy and does not complain of any health issues, it was observed that his lips had swollen due to playing of the brass instrument and had also developed a lump on his lips. He had not undergone any medical checkup for his swollen lips, but the health conditions can be attributed to his prolonged engagement in blowing of wind instruments. He although accepted his addiction to alcohol, smoking and consumption of *Gutkha* on regular basis. Besides, physically he looks healthy, he even had the maximum FVC,FEV1 and PEF measurements in his group. His blood pressure showed normal reading with 134-93 mmHg and heart rate of 63 bpm. He has three children aged between 16 to 24 years and are enrolled in schools with the eldest working in a private bank as a clerk. He while submitting his focus on education; stressed on the importance of education and professionalism in the present context.

The in-depth case study focusing on the occupational health risks of the *Bandwallahs* was done as discussed above. Results showed that these professionals are exposed to high risks due to their occupation. One person had developed high blood pressure, blurred vision, pain in oromandibular region and dental problems. Reduced cardio-respiratory function had been noticed in one individual as well. Addiction to alcohol and tobacco can also be attributed as reasons for the above symptoms.

CONCLUSION

Playing wind instruments promotes respiratory health, but when it is done very often, or for longer durations, it may deteriorate the health of the player. In case of above issues, poor lifestyle and alcoholism can be stated responsible for their deteriorating health condition like under-weight and high blood pressure, but the blurred vision and other dental problems can be due to excessive playing of the instrument or lack of knowledge about the instrument as they were never given a proper professional training. Socio-economically they belong to the most deprived section of the society and are working on improving the status of their future generation through education and modern means of employment.

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REFERENCES CITED

Kok, L. M., Karlijn A. Groenewegen, Bionka M. A. Huisstede, Rob G. H. H. Nelissen , A. Boni M. Rietveld and Saskia Haitjema 2018. The high prevalence of playing-related musculoskeletal disorders (PMRDs) and its associated factors in amateur musicians playing in student orchestras: A cross-sectional study. *PLoS ONE* 13(2):

e0191772.

Nishiyama, A., E Tsuchida 2016. Relationship between wind instrument playing habits and symptoms of temporomandibular disorders in non professional musicians. *The Open Dentistry Journal,* 10: 411-416.

Sagdeo, M.M. and P.D. Khuje. 2012. Pulmonary functions in trained and untrained wind instrument blowers, *People's Journal of Scientific Research,* 5(2): 9-12.

World Health Organization 2002. *World health report: Reducing risks, promoting healthy life*. https://www.who.int/publications/i/item/9241562072

Internet Link:

https://www.google.co.in/books/edition/The_World_Health_Report_2002/epuQi1PtY_cC?hl=en&gbpv=1&printsec=frontcover